

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Kiyohiro YOKOYAMA et al.

Serial No. NEW : **Attn: Application Branch**

Filed November 27, 2001 : **Attorney Docket No. 2001_1766A**

GLASS TOUCH PANEL

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents,
Washington, DC 20231

THE COMMISSIONER IS AUTHORIZED
TO CHARGE ANY DEFICIENCY IN THE
FEES FOR THIS PAPER TO DEPOSIT
ACCOUNT NO. 23-0975

Sir:

Kindly amend the above-identified application as follows.

IN THE CLAIMS

Please amend claims 3-4 and 6-20 as follows.

3. (Amended) A glass touch panel as in claim 1, wherein the hygroscopic fine particles are mixed to the adhesive with a weight ratio of 10% or less.

4. (Amended) A glass touch panel as in claim 1, wherein a silver electrode mixed with a glass fiber is disposed at a predetermined position on an outer periphery of the transparent conductive film.

6. (Amended) A glass touch panel as in claim 4, wherein a silver paste having a electric resistivity of $5.0 \times 10^{-4} \Omega \text{ cm}$ is used for the silver electrode.

7. (Amended) A glass touch panel as in claim 1, wherein the adhesive is a thermosetting or room-temperature setting epoxy type sealant or UV setting acrylic type sealant.

8. (Amended) A glass touch panel as in claim 1, wherein a light transmittance is 85% or more.

9. (Amended) A glass touch panel as in claim 1, wherein an operation temperature is from -30 to 65°C, under the condition of 90% RH or less.

10. (Amended) A glass touch panel as in claim 1, wherein a storing temperature is from -40 to 85°C under the condition of 95% RH or less.

11. (Amended) A glass touch panel as in claim 1, wherein an operation load when a switch is in a conductive state by pressing the upper transparent glass substrate with a test rod having a top end R of 4 mm, a diameter of 8 mm φ and a hardness of 60° is from 10 to 200 g.

12. (Amended) A glass touch panel as in claim 1, wherein superfine particle dot spacers made of a thermosetting resin, each having a diameter of from 20 to 100 μm and a height of from 3 to 6 μm , are disposed at a pitch of from 2 to 4 mm on the transparent conductive surface of the lower transparent glass substrate.

13. (Amended) A glass touch panel as in claim 1, wherein the upper transparent glass substrate comprises borosilicate glass or soda glass having a thickness of from 0.15 to 0.3 mm, and the lower transparent glass substrate comprises a soda glass having a thickness of from 0.5 to 3.0 mm.

14. (Amended) A glass touch panel, as in claim 1, wherein the transparent conductive film is deposited by vapor deposition in a predetermined shape with sputtering or chemical vapor deposition.

15. (Amended) A glass touch panel as in claim 1, wherein a rating is 50 mA or less for DC 5V and an insulation resistance is 10 M Ω or more between the upper and lower electrodes for DC 25V.

16. (Amended) A glass touch panel as in claim 1, wherein a linearity is $\pm 3.5\%$ or less.

17. (Amended) A glass touch panel as in claim 1, wherein a bounce by an ordinary finger operation method is 10 msec or less.

18. (Amended) A glass touch panel as in claim 1, wherein an electrostatic withstand voltage is 15 kV or more.

19. (Amended) A glass touch panel as in claim 1, wherein a dynamic range is from 0 to 0.7 V at the lower limit and from 5 to 4.6 V at the upper limit.

20. (Amended) A glass touch panel as in claim 1, wherein a size of the transparent glass substrate is 2 to 20 in.

REMARKS

The above claim amendments are presented in order to remove multiple claim dependencies, so as to reduce the required filing fee.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment page is captioned "Version with markings to show changes made."

Respectfully submitted,

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Version with Markings to
Show Changes Made

What is claimed is:

1. A glass touch panel comprising a pair of transparent glass substrates, each having a transparent conductive film and also opposed to each other at the transparent conductive film surface, wherein the upper transparent glass substrate as a touch input part and the lower transparent glass substrate are bonded by an adhesive mixed with hygroscopic fine particles.
2. A glass touch panel as in claim 1, wherein each of the hygroscopic fine particles has a diameter of $50\mu\text{m}$ or less.
3. A glass touch panel as in claim 1 or 2, wherein the hygroscopic fine particles are mixed to the adhesive with a weight ratio of 10% or less.
4. A glass touch panel as in ~~any one of claims~~ 1 to 3, wherein a silver electrode mixed with a glass fiber is disposed at a predetermined position on an outer periphery of the transparent conductive film.
5. A glass touch panel as in claim 4, wherein the glass fiber is mixed to the silver electrode with a weight ratio of 10% or less.
6. A glass touch panel as in claim 4 or 5, wherein a silver paste having a electric resistivity of $5.0 \times 10^{-4} \Omega\text{cm}$ is used for the silver electrode.
7. A glass touch panel as in ~~any one of claims~~ 1 to 6, wherein the adhesive is a thermosetting or room-temperature setting epoxy type sealant or UV setting acrylic type sealant.
8. A glass touch panel as in ~~any one of claims~~ 1 to 7, wherein a light transmittance is 85% or more.
9. A glass touch panel as in ~~any one of claims~~ 1 to 8, wherein an operation temperature is from -30 to 65°C under the condition of 90% RH or less.
10. A glass touch panel as in ~~any one of claims~~ 1 to 9, wherein a storing temperature is from -40 to 85°C under the condition of 95% RH or less.

11. A glass touch panel as in any one of claims 1 to 10, wherein an operation load when a switch is in a conductive state by pressing the upper transparent glass substrate with a test rod having a top end R of 4 mm, a diameter of 8 mm ϕ and a hardness of 60° is from 10 to 200 g.

12. A glass touch panel as in any one of claims 1 to 11, wherein superfine particle dot spacers made of a thermosetting resin, each having a diameter of from 20 to 100 μm and a height of from 3 to 6 μm , are disposed at a pitch of from 2 to 4 mm on the transparent conductive surface of the lower transparent glass substrate.

13. A glass touch panel as in any one of claims 1 to 12, wherein the upper transparent glass substrate comprises borosilicate glass or soda glass having a thickness of from 0.15 to 0.3 mm, and the lower transparent glass substrate comprises a soda glass having a thickness of from 0.5 to 3.0 mm.

14. A glass touch panel as in any one of claims 1 to 13, wherein the transparent conductive film is deposited by vapor deposition in a predetermined shape with sputtering or chemical vapor deposition.

15. A glass touch panel as in any one of claims 1 to 14, wherein a rating is 50 mA or less for DC 5V and an insulation resistance is 10 M Ω or more between the upper and lower electrodes for DC 25V.

16. A glass touch panel as in any one of claims 1 to 15, wherein a linearity is $\pm 3.5\%$ or less.

17. A glass touch panel as in any one of claims 1 to 16, wherein a bounce by an ordinary finger operation method is 10 msec or less.

18. A glass touch panel as in any one of claims 1 to 17, wherein an electrostatic withstand voltage is 15 kV or more.

19. A glass touch panel as in any one of claims 1 to 18, wherein a dynamic range is from 0 to 0.7 V at the lower limit and from 5 to 4.6 V at the upper limit.

20. A glass touch panel as in ~~any one of claims 1 to 19~~, wherein a size of the transparent glass substrate is 2 to 20 in.